On continuous dependence of solutions of dynamic equations

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The main goal of the talk is to present a new approach to the problem of continuous dependence of solutions of differential or dynamic problems on their domains. This is of particular interests when we use dynamic (difference, in particular) equations as discretization of a given one. We cover a standard construction based of difference approximations for the continuous one, but we are not restricted only to this case. For a given differential equation we take a sequence of time scales and we study the convergence of time scales to the domain of the considered problem. We choose a kind of convergence of such approximated solutions to the exact solution. This is a step for creating numerical analysis on time scales and we propose to replace in such a situation the difference equations by dynamic ones. In the proposed approach we are not restricted to the case of classical numerical algorithms. Moreover, this allows us to find an exact solution for considered problems as a limit of a sequence of solutions for appropriate time scales instead of solving it analytically or calculating approximated solutions for the original problems.